

REMARKS

In response to the action applicants have amended the specification and claims 1, 4, 13, 14 and 18. Applicants respectfully request reconsideration in view of the amendment and the following remarks.

In accordance with the Examiner's request, Applicants have also removed imidazole from paragraph 21.

Applicants have amended claims 1, 4, 13, 14 and 18 to a list of more specific specific imine derivative compounds. Specifically, these claims now cover formamidine, formamidine salts, formamidine derivatives, guanidine derivatives, guanidine salts and mixtures thereof and include specific formamidine and guanidine derivatives listed in the specification, but no longer include acetidine or arginine. Paragraph 30 provides a basis for the specific imine derivative compounds. In addition, Applicants have amended claims 1 and 18 to clarify the location of R<sup>7</sup> that describes the hydrazine compounds. Applicants respectfully submit that these amendments enter no new matter.

Applicants have maintained claims 13 to 19 withdrawn from consideration. Because the withdrawn claims include restrictions at least as narrow as claim 1, however, Applicants respectfully submit that the withdrawn claims do not require an additional search for examination. Furthermore, because they all incorporate a scope narrower than claim 1, allowance of the claims would be proper under MPEP § 809.02 and § 821.04.

The action rejects claim 1 under 35 U.S.C. § 112, second paragraph, for the unclear placement of the hydrazine descriptor R<sup>7</sup>. In response to the rejection, Applicants' attorney has

placed the descriptor in a logical location. Applicants respectfully submit that amended claim 1 is sufficiently clear.

The action rejects claims 1 to 3 as being obvious under 35 U.S.C. § 103(a) in view of EP 1229093 ('093). The '093 patent does not disclose the use of an imine derivative or hydrazine derivative for facilitating barrier removal; and as suggested, Applicants have amended paragraph 21 to no longer include imidazole. Specifically EP '093 discloses hydrogen peroxide, an abrasive, an organic ammonium salt and imidazole. As noted in the Declaration of Dr. Bian dated February 16, 2006, imidazole (N-C-N structure) is not a hydrazine derivative, because it lacks a double nitrogen (N-N) structure. Thus, since the '093 patent does not disclose the use of an imine derivative or hydrazine derivative for facilitating barrier removal and imidazole per se is different than the claimed hydrazine derivatives, Applicants respectfully submit that EP '093 does not disclose or suggest the claimed invention.

The action provisionally rejects claims 1 to 4 and 11 for obviousness-type double patenting in view of claims 1 to 7 of US. Pat. Pub. No. 2005/0236601 ('601 to Liu et al.). Since claims 1 to 7 lack either guanidine, hydrazine or their derivatives for use in accelerating removal of barrier materials, Applicants respectfully submit that the pending claims are patentably distinct in view of '601 to Liu et al.

The action provisionally rejects claims 1 to 4 and 11 for obviousness-type double patenting in view of claims 1 to 8 of US. Pat. Pub. No. 2005/0070211 ('211 to Liu et al.) in view of Liu et al. '789. Since claims 1 to 8 lack the quaternary ammonium salt for use in accelerating removal of barrier materials, Applicants respectfully submit that the pending claims are patentably distinct in view of '211 to Liu et al. The USPTO applies the obviousness-type double patenting to restrict multiple patents claiming different subject matter to form the

provisional rejection. Applicants respectfully submit that the combining of the references appears to represent a recognition that the claimed invention is patentably distinct. In view of the above, Applicants respectfully request withdrawal of the provisional double patenting rejection.

The action rejects claims 1 to 4 and 11 as being obvious under 35 U.S.C. § 103(a) in view of Wang et al. (US Pat. Pub. No. 2003/0170991) alone or in view of Tsuchiya et al. ('268). Wang et al. disclose the use of guanidine nitrate in Table 3 for copper removal slurries. These slurries have high copper to tantalum selectivity—the opposite of the claimed invention. In addition, Wang et al. in paragraphs 26 to 27 make a general disclosure to quantenary ammonium salts for use as preferred stopping compounds. Wang et al. do not disclose or suggest the specific-claimed quantenary ammonium compounds where  $R_1$  is a substituted or unsubstituted aryl, alkyl, aralkyl, or alkaryl group and  $R_1$  has a carbon chain length of 2 to 10 carbon atoms. Furthermore, Wang et al. do not disclose or suggest adding a quantenary ammonium salt to a barrier removal slurry for improved dielectric removal rate. Paragraph 26 in particular discloses that the stopping compound reduces barrier removal rate of materials such as Ta and TaN. This also teaches away from Applicants' claimed invention. In addition, Tsuchiya et al. '268 disclose arginine, but Applicants claims no longer cover this imine derivative. Applicants respectfully submit that Wang et al. do not disclose or suggest the specific quantenary ammonium compound where  $R_1$  is a substituted or unsubstituted aryl, alkyl, aralkyl, or alkaryl group and  $R_1$  has a carbon chain length of 2 to 10 carbon atoms, do not teach adding these compounds to a barrier slurry and teach quantenary ammonium compounds in general would have a detrimental impact on barrier polishing, Applicants respectfully submit that claims 1 to 4 and 11 are not obvious in view of Wang et al. Furthermore, because

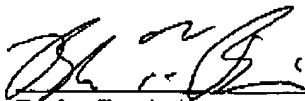
Applicants no longer cover arginine, Applicants respectfully submit that the optional combination rejection becomes moot.

The action rejects claims 1 to 4 and 11 as being obvious under 35 U.S.C. § 103(a) over Fuji et al. ('526) in view of Uphues et al. ('749). The rejection combines the amino acid of Fuji et al. with the arginine of Uphues et al. Since the claims no longer cover arginine, Applicants respectfully submit that the rejection becomes moot.

Applicants respectfully request reconsideration of the amended claims. If a telephone call would expedite matters, then please call me at 302-283-2136.

Respectfully submitted,

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Date

  
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